



AFCESA A-GRAM



AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

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EVALUATION OF PIPE WRAP TAPES AND COATINGS

SYNOPSIS:

Aboveground piping, like any metallic structure, is subject to corrosion. To prevent premature failure, high performance coating systems are applied to the pipeline after it is abrasive blasted. Some small sections of pipe may be subject to severe corrosion, in which case the standard coating practice may not be applicable, effective, or economical since it usually involves areas of 100 square feet or less. A method was needed to clean and protect these areas once corrosion became apparent through the standard three coatings system.

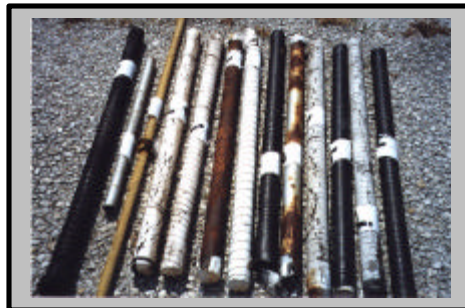
In 1990 AFCESA initiated a study at Cape Canaveral Air Force Station for application of a pipe wrap system or coating following surface preparation by hand tool methods. The products tested are listed below. The numbers at the left provide a relative rating of level of effectiveness.

1. 50 mil White Protectowrap
2. 50 mil Black Polyken Tape
3. 30 mil Black Protectowrap
3. 50 mil Black Protectowrap
3. 50 mil Black Tapecoat
3. 30 mil Tan Tapecoat with primer
3. 30 mil Tan Tapecoat w/o primer
3. 30 mil Polyken Tape
4. 30 mil White Protectowrap
4. 50 mil White Tapecoat
5. Royston Laboratory Aluminum Aerosol Spray applied on site
5. Royston Laboratory Yellow Splash Zone Compound applied to wetted pipe at site
6. Aluminum Aerosol Paint (applied on site)
6. Tapecoat Pipeline Mastic

NEWS YOU CAN USE:

An evaluation of the test specimens was performed in August 1998. In general, the tape wraps provided better corrosion protection than coating systems.

The 50 mil White Protectowrap had the best performance of materials tested. This wrap had little or no deterioration after eight years of exposure. A close second in terms of performance was earned by the Black 50 mil Polyken Tape wrap, which had only a slight loss of gloss from ultra violet exposure.



Six products tested about the same. The 30 mil Black Protectowrap, 50 mil Black Protectowrap, 50 mil Black Tapecoat, 30 mil Tan Tapecoat (with and without primer), and 30 mil Polyken Tape all had slight deterioration of the surface gloss or color. All should provide excellent corrosion protection of piping in pits and good corrosion protection of piping above ground with a less than desirable appearance due to less UV resistance than the top rated products. In the next category, 30 mil White Protectowrap and 50 mil White Tapecoat provided excellent corrosion resistance but poor resistance to sunlight. These materials had cracking of the tape wrap and fading of

color. Receiving the lowest relative rating, the aluminum aerosol spray had scattered pinpoint rust. It could be used for small areas such as joint fittings, elbows, etc., for short-term corrosion control. The Yellow Splash Zone Compound performed satisfactorily except on the union coupling. There, pipe surfaces were severely rusted with little or no coating remaining. All materials except the Royston Laboratory Yellow Splash Zone Compound are easily applied in the field.

CONCLUSION:

The first choices to protect aboveground piping on the relatively small areas where a traditional coating system won't work or is not economical to reapply are 50 mil White Protectowrap and 50 mil Black Polyken tape. Alternative pipe wrap systems for use at Air Force bases are 30 mil Black Protectowrap, 50 mil Black Protectowrap, 50 mil Black Tapecoat, and 30 mil Tan Tapecoat, with or without primer, for use where UV resistance is not required. Of course, surface preparation and application of these pipe wrap and coating materials should be made in accordance with the manufacturer's instructions.

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